



NTSB National Transportation Safety Board

Office of Aviation Safety

Delta Connection Flight 6448 Operated by Shuttle America

Operational Issues

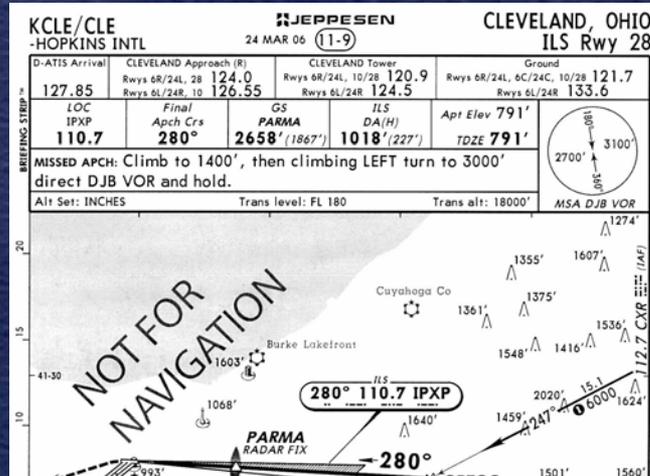
Operational Issues

- Notices to Airmen (NOTAM)
- Instrument approach minimums
- Decision-making during approach
- Touchdown point
- Use of reverse thrust
- Use of brakes

Notices to Airmen (NOTAMs)

- NOTAMs affecting runways
 - Minimums raised to localizer only
 - Glideslope remains in service but angle may be different than published
- Neither pilot read NOTAMs
- Information should have been evaluated during preflight activities

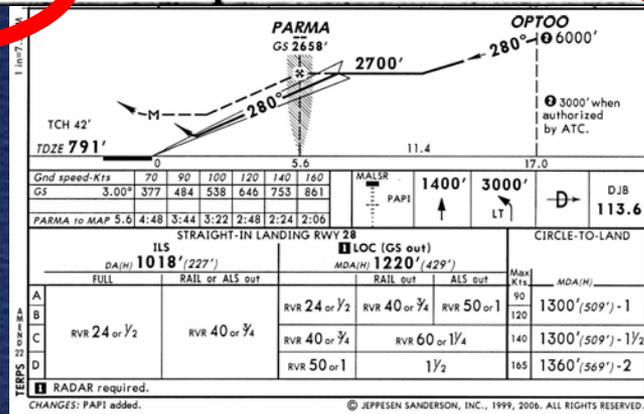
Instrument Approach Minimums



STRAIGHT-IN LANDING RWY 28

ILS
DA(H) **1018'** (227')

1 LOC (GS out)
MDA(H) **1220'** (429')



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Instrument Approach Minimums

- Pilots received indications glideslope functioning
- LOC (GS out) minimum descent altitude (MDA) of 429 feet should have been used
- ILS decision height (DH) of 227 feet used
- Missed approach likely with MDA instead of DH
 - Pilots did not see runway environment at 429 feet

Decision-making During Approach

- Captain lost sight of runway at 80 feet
- Captain called for go-around
- First officer continued
- Missed approach required if
 - Flight visibility less than visibility prescribed in instrument approach procedure, or
 - Approach lighting and runway environment not visible at or below DH or MDA

Decision-making During Approach

- First officer lost sight of runway at altitude of about 10 feet but continued to land
- Rejected landing training is required
 - No requirement for changing weather conditions
 - Can be accomplished in unrestricted weather conditions

Touchdown Point

- Target: 1,000 feet
- Company guidance: no farther than 2,006 feet
- Touchdown: 2,900 feet
 - About halfway down 6,017-foot runway

Use of Reverse Thrust

- Company guidance – maximum at main gear touchdown
 - Until 80 knots, or
 - To full stop during emergency
- Not commanded until about 5 seconds after main gear touchdown
- Reached about 65 percent for about 2 seconds before tapering off

Use of Brakes

- Company guidance – full braking on slippery runways
- Initial brake application with about 1,850 feet runway remaining
 - Light braking
- Increased braking to 90 percent of maximum with about 450 feet remaining



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